# CHARA Remote Operations and Data Access

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# The CHARA Server

- Located at GSU Data Center
- 5 Virtual Machines:
  - Remote Observing
    - altair & novadel
  - Data Archive
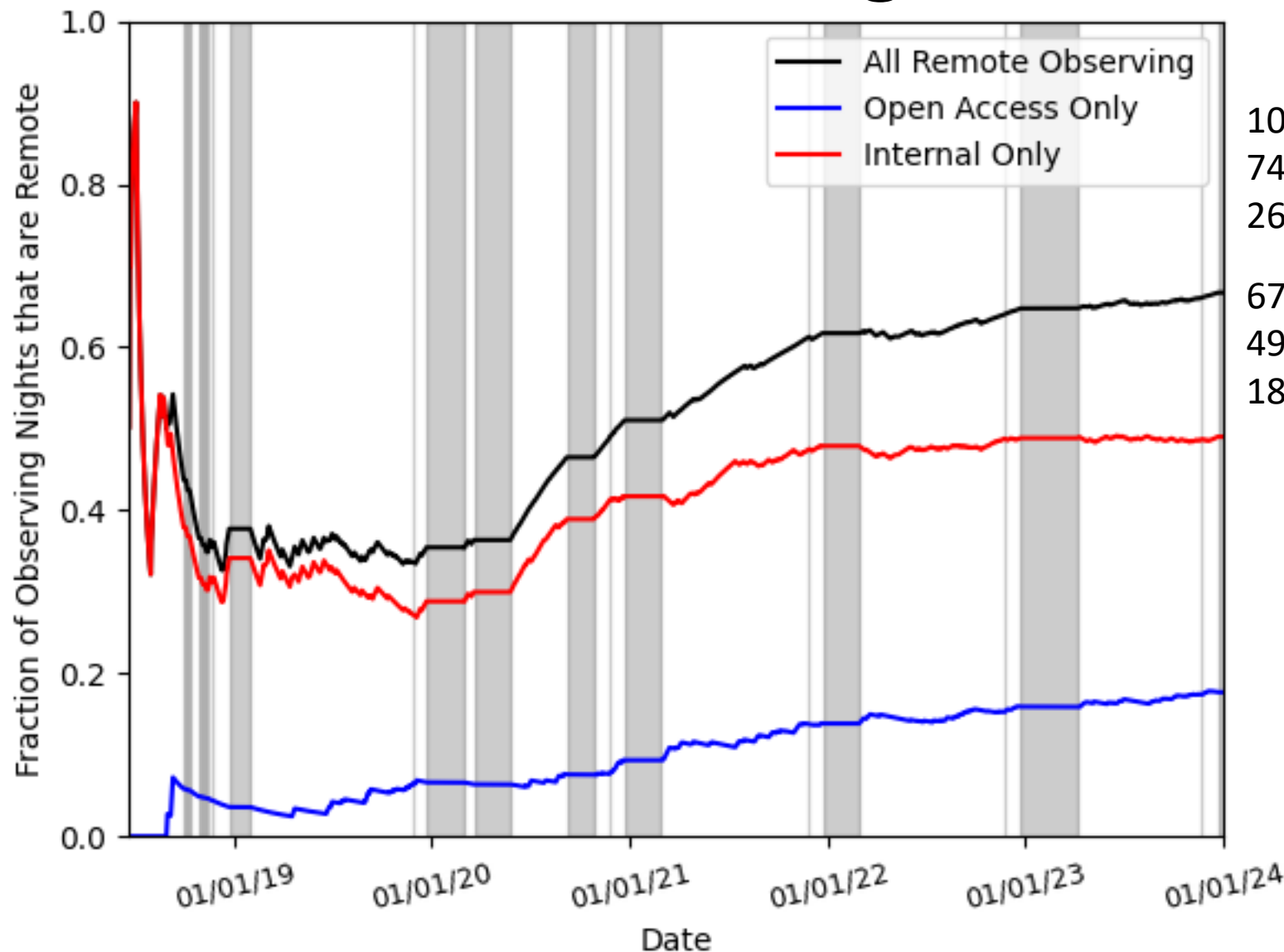  - Remote Data Reduction
  - Database Portal

# Remote Observing

- Connect to Atlanta machine using VNC

- Atlanta machine connects to mountain using SSH tunnel

- CHARA software is the same as that on the mountain
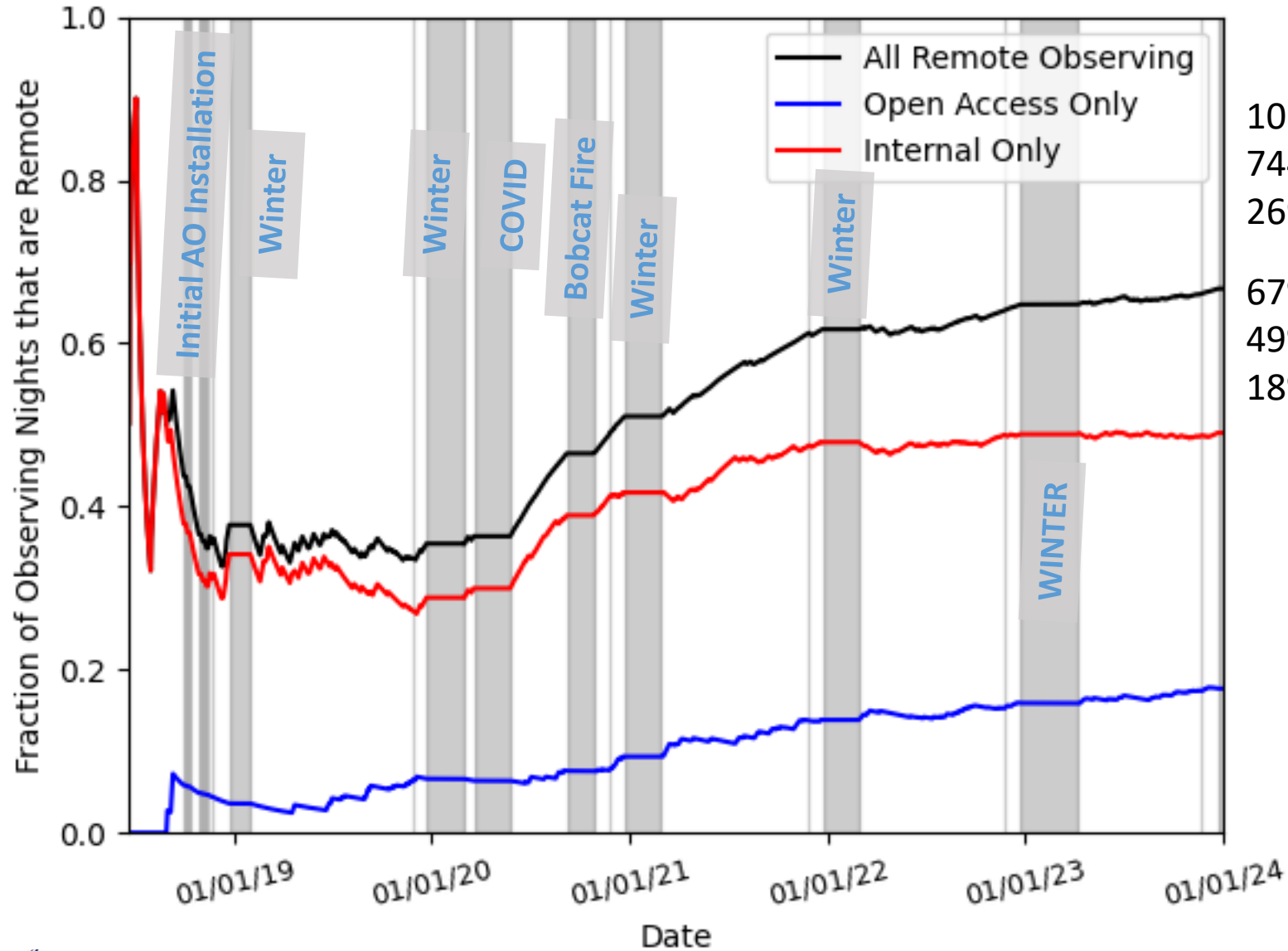
# Remote Observing Stats



1013 Remote Nights
744 Internal
269 Open Access

67% Remote Nights
49% Internal+Remote
18% Open Access+Remote

Remote Operations
& Data Access

# Remote Observing Stats



1013 Remote Nights
744 Internal
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67% Remote Nights
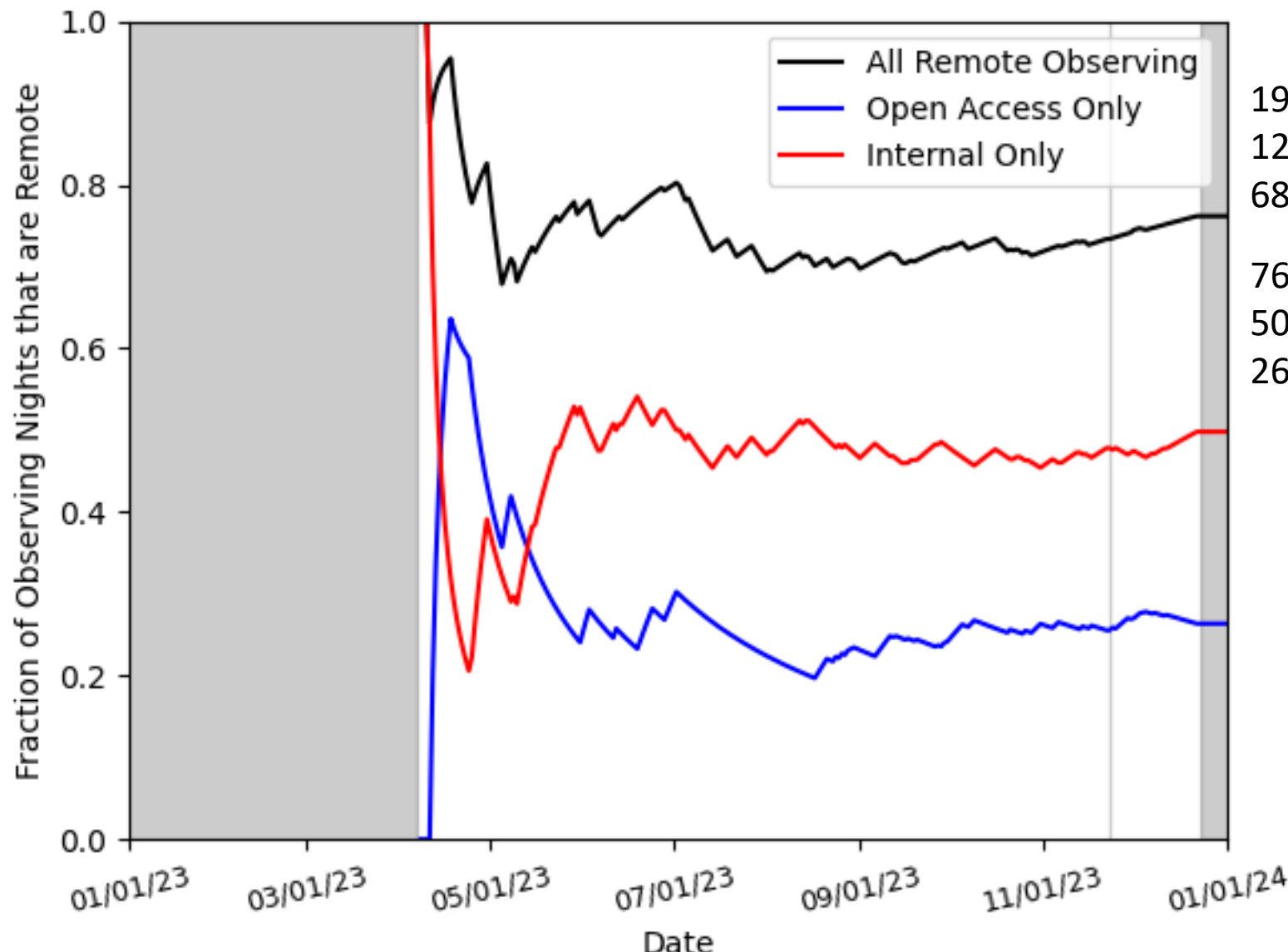49% Internal+Remote
18% Open Access+Remote

Remote Operations
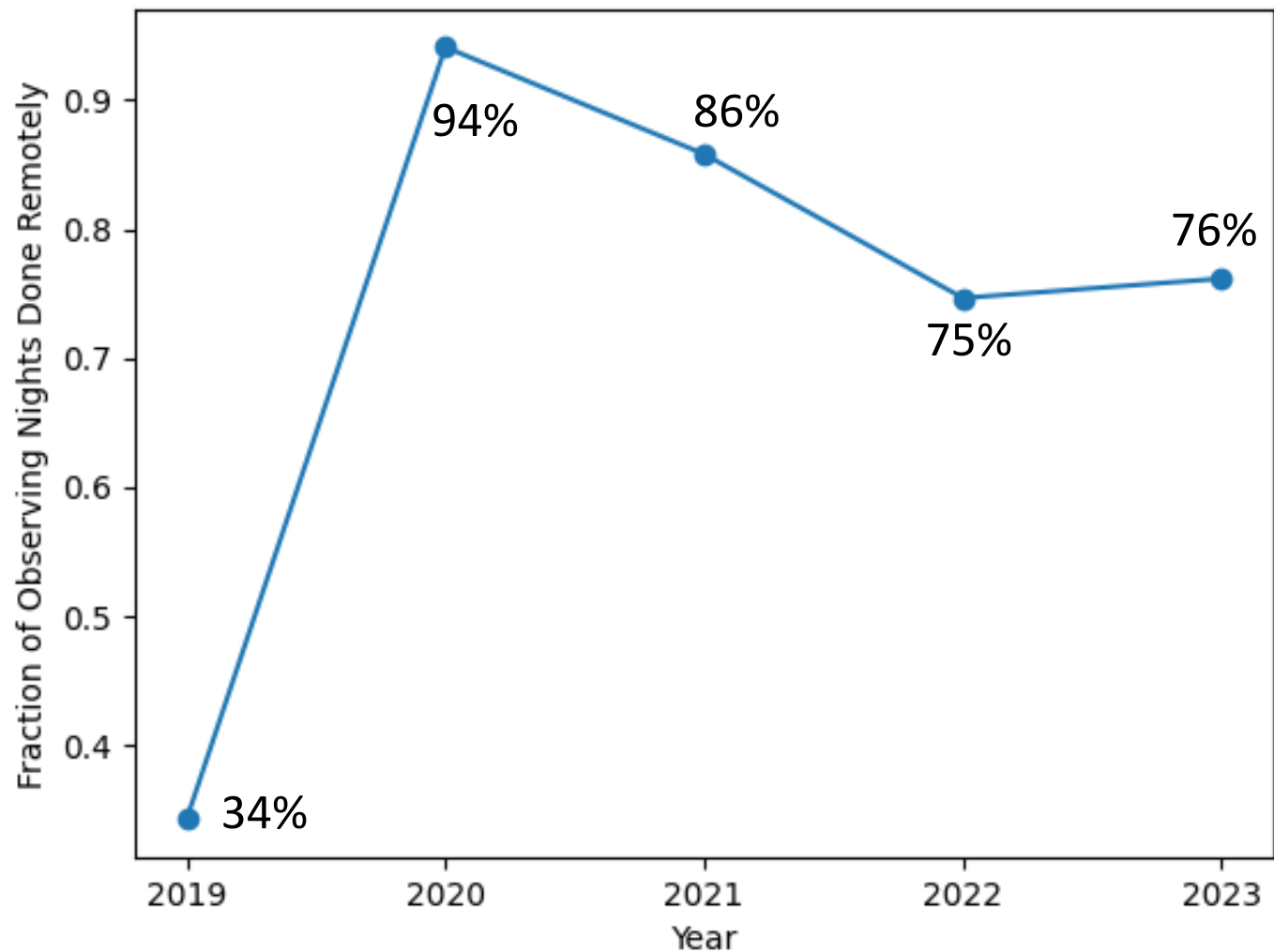& Data Access

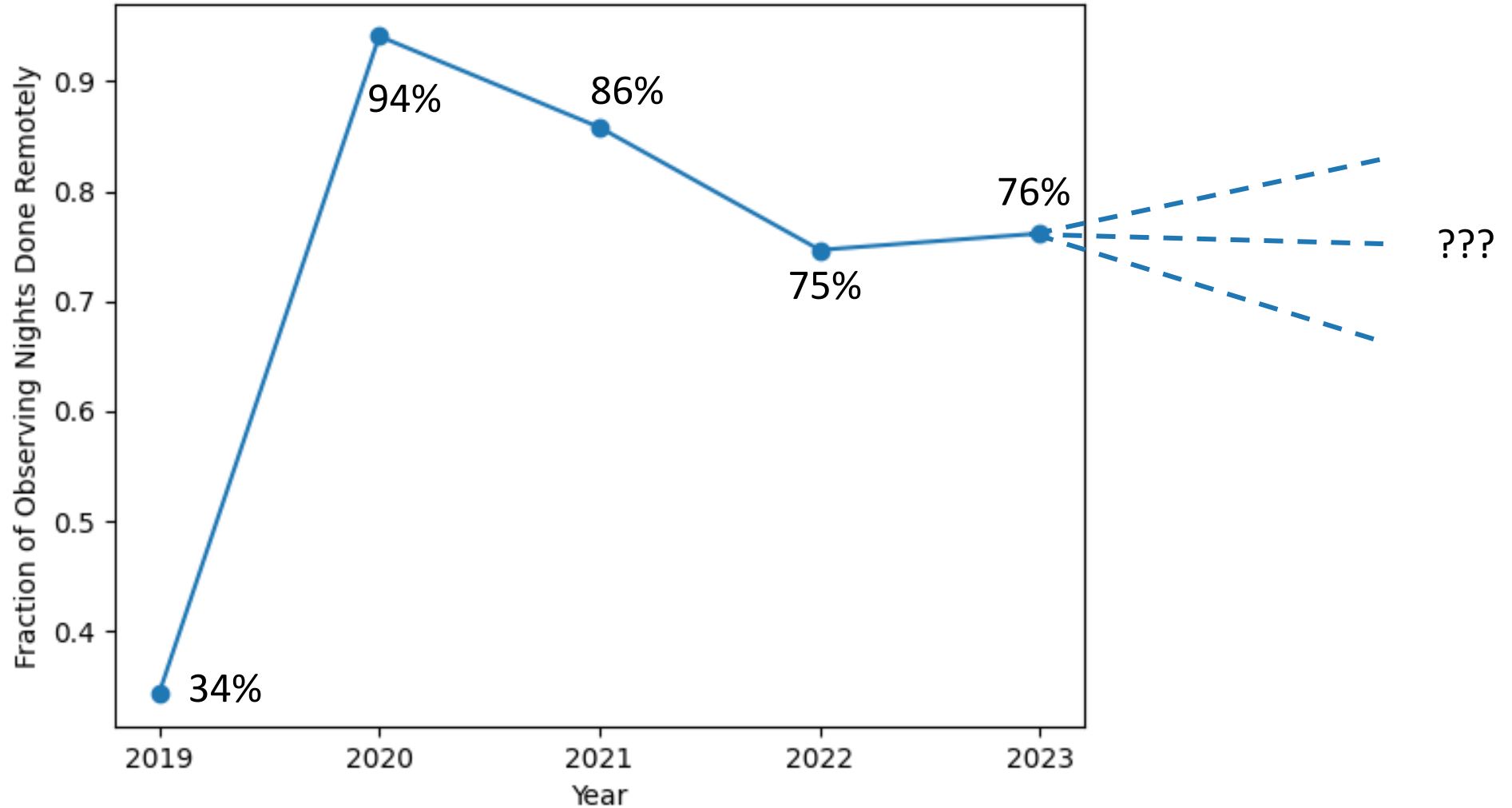# Remote Observing Stats (2023 Only)



197 Remote Nights
129 Internal
68 Open Access

76% Remote Nights
50% Internal+Remote
26% Open Access+Remote

# Remote Observing Stats (2019 – 2023)

# Remote Observing Stats (2019 – 2023)

# CHARA Discord Bot

- Reads logs from wavefront sensor and weather server

- Helpful notices at start/mid/end of night

- bot-spam channel

- Can print reports:

  - !seeing (R0 seeing in cm)

  - !rh (Relative Humidity)

  - !wind (Sustained & Gust)

  - !times (important times)

# CHARA Atlanta Data Archive



Remote Operations
& Data Access

10
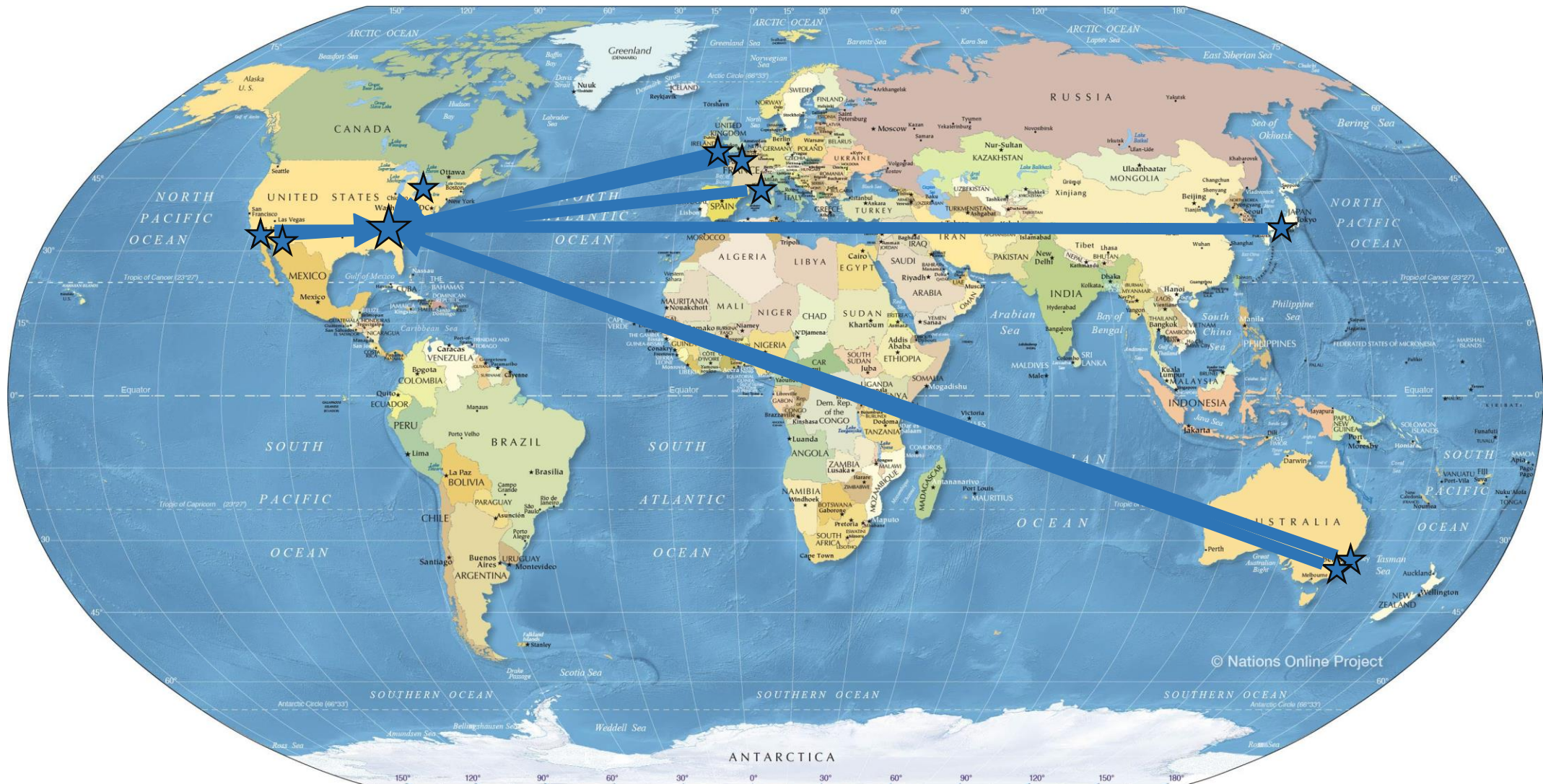
# CHARA Data Policy

- All CHARA data are public EXCEPT:
    - New data (18-month proprietary period)
    - Student thesis data
    - Long-term survey data
- Data are accessible on the Remote Data Reduction Machine

# CHARA Online Database Portal

## database.chara-array.org

## CHARA Database Query Form

Select a database:

○ All CHARA
○ Classic
○ CLIMB 1
○ CLIMB 2
○ FLUOR
○ JouFLU
○ MIRC
○ MIRC-X
○ MYSTIC
○ PAVO
○ VEGA

Submit

## CHARA Database Query Form

**Star Name**

Enter a target name in any format (e.g., Vega, alpha Lyr, HD 172167, etc.). The webapp will determine the coordinates of the target using a CDS search and will constrain the database to those coordinates.

**Start Date**

mm / dd / yyyy

**End Date**

mm / dd / yyyy

**Search Distance (degrees)**

0.50

The distance from the target star to constrain the database by.

**Columns to Display:**

Star_HD
Object_Type
UT_Date
UT_Time

**Select Beam Combiner(s):**

Classic
CLIMB 1
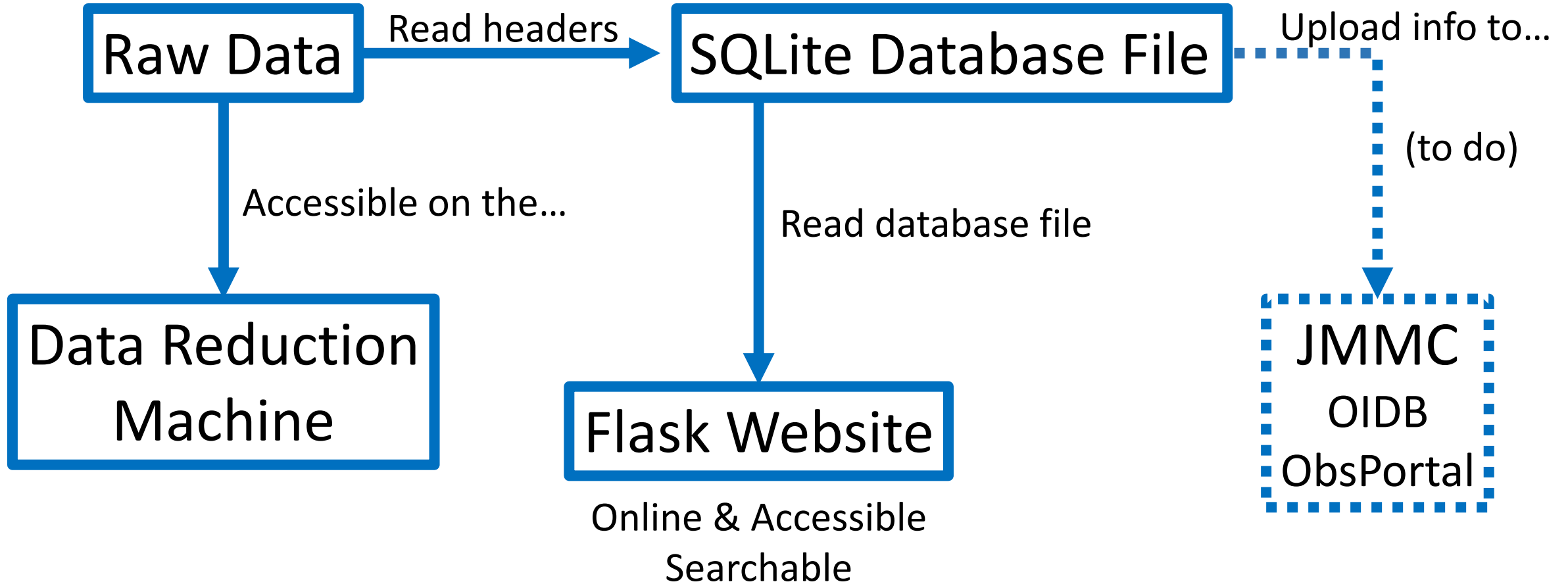CLIMB 2
FLUOR

**Select PI(s):**

25
Anderson
Baines
Baron

The Primary Investigator as listed in the data headers. NOTE: Sometimes misspellings of PI names occur or filler text is used on testing nights. Many observations do not have a listed PI.

Submit

Remote Operations & Data Access

# CHARA Online Database Portal

Stored on archive machine

| Raw Data | — Read headers → | SQLite Database File | ⋯ Upload info to… ⋯ |

Accessible on the…

(to do)

Read database file

| Data Reduction Machine |

| Flask Website |

Online & Accessible
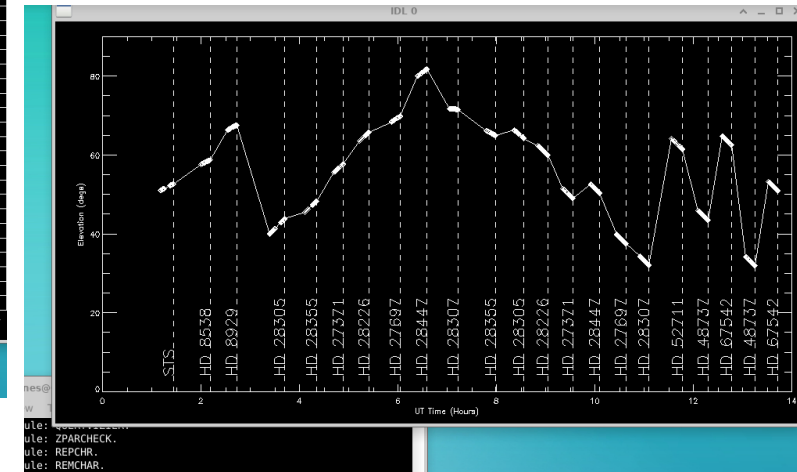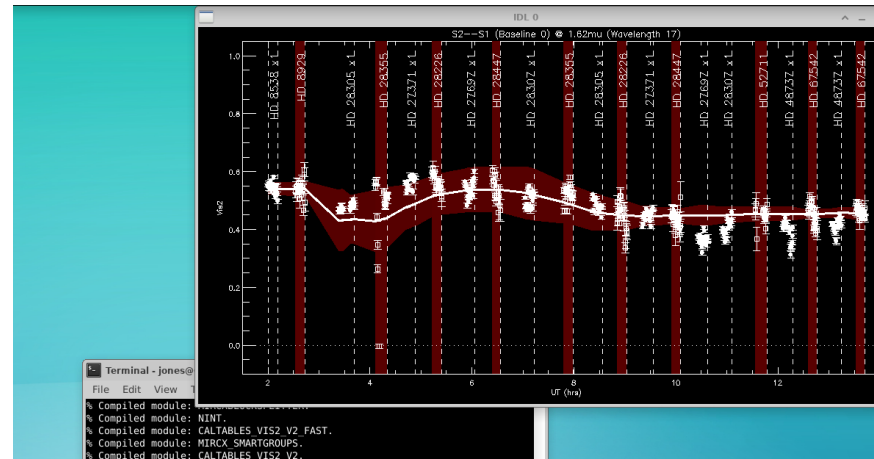Searchable

| JMMC OIDB ObsPortal |

# Remote Data Reduction

- Data Reduction Machine linked to archive

- Reduce data remotely

- Download final reduction

- **Benefits:**
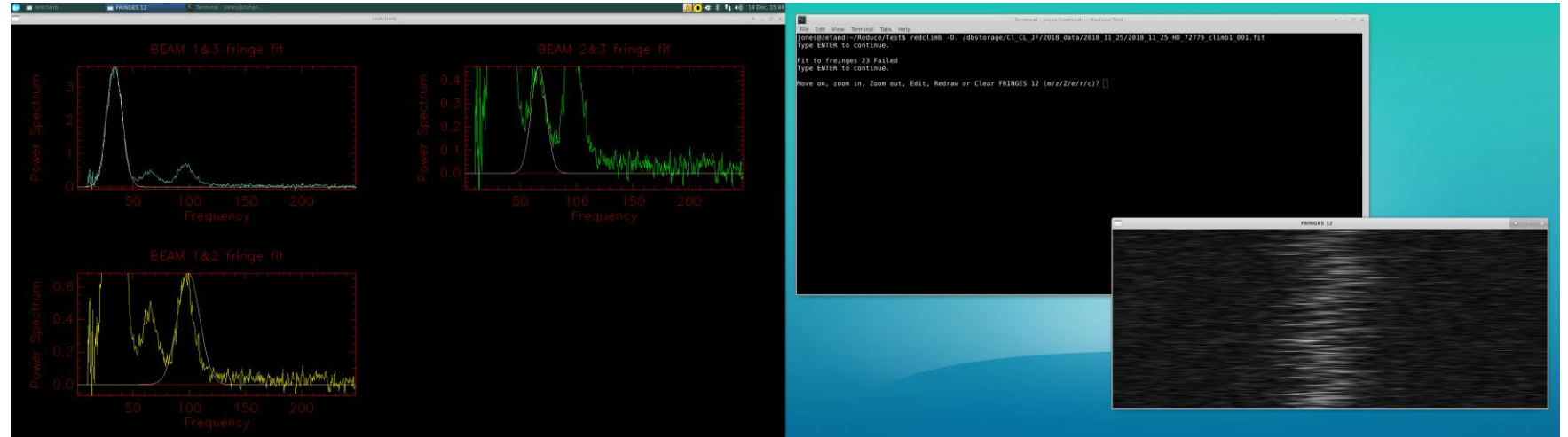
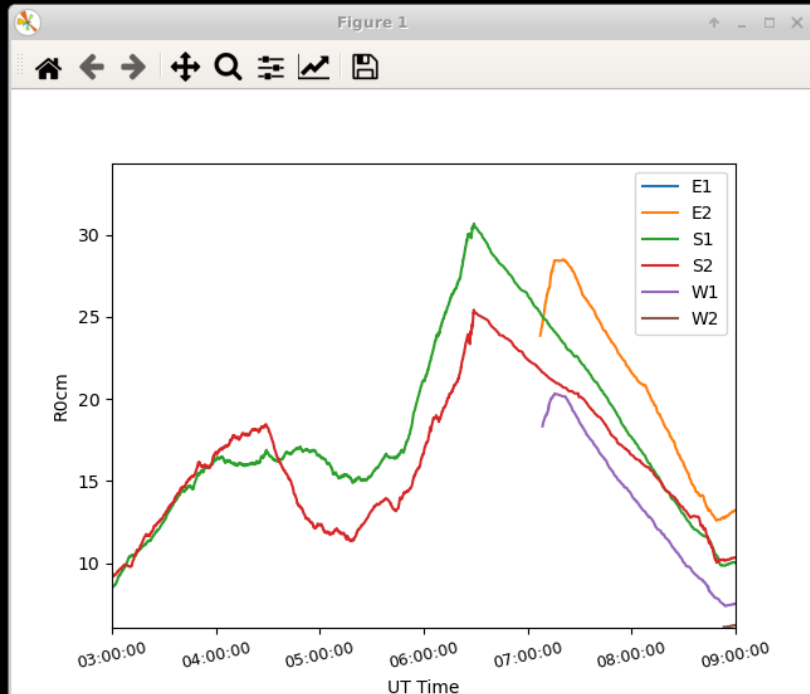  - Reduction software always up to date

  - No need to download raw data

  - Cross-platform

# CHARA Seeing Reviewer

**(it does more than just seeing!)**

# CHARA Remote Operations